REMARKS

Applicants thank the Examiner for the thorough consideration given the present application. Claims 1, 9, 10, 18, 19 and 25 are currently being prosecuted. The Examiner is respectfully requested to reconsider her rejections in view of the Amendments and remarks as set forth below.

ENTRY OF AMENDMENT

It is respectfully requested that the present amendment should be entered into the official file in view of the fact that the amendment to the claims automatically places the application in condition for allowance. Alternatively, if the Examiner does not agree that the application is condition for allowance, it is respectfully requested that the present amendment be entered for the purpose of Appeal. The present changes only involve canceling a redundant paragraph. Accordingly, Applicants submit that entry of this amendment and full consideration thereof is proper.

INFORMATION DISCLOSURE STATEMENT

On January 25, 2005, an Information Disclosure Statement was filed in order to inform the Examiner of an error on the PTO-1449 Form submitted with the Information Disclosure Statement filed on December 5, 2003 (i.e., JP 200**0**-288102 should have read JP 200**2**-288102).

The Examiner has returned an copy of the PTO-1449 Form from the December 5, 2003, Information Disclosure Statement, wherein each of the references has been initialed. Applicants

believe that the Examiner in fact considered JP 2002-288102, which was submitted with the December 5, 2003, Information Disclosure Statement. However, for clarification purposes Applicants attach hereto an SB08 Form, which correctly lists JP 2002-288102. The Examiner is respectfully requested to return an initialed copy of the SB08, indicating that JP 2002-288102 has been considered.

CLAIM CHANGES

Applicants have canceled one paragraph from claim 10 in order to remove redundant language. This same paragraph already appears in claim 1, and since claim 10 depends claim 1, it is not necessary to repeat this paragraph. Applicants submit that this cancellation does not raise any new issues.

REJECTION UNDER 35 U.S.C. § 103

Claims 1, 9, 10, and 25 stand rejected under 35 U.S.C. § 103 as being obvious over Nambu et al. (U.S. Patent 5,615,430) in view of Oota (U.S. Published Application 2002/0039403). This rejection is respectfully traversed.

The Examiner states that Nambu et al. shows a composite irradiation system including a CT scanner, irradiation apparatus and x-ray simulator that uses a common bed. The bed is capable of movement in both linear and curved movements and may also rotate on a turntable mounted on the floor. The Examiner admits that Nambu et al. does not include the movement of the CT scanner, irradiation apparatus or x-ray simulator.

The Examiner relies on Oota to show an apparatus which consists of a CT scanner and irradiation apparatus in the form of an X-ray device where both are moveable on rails. Oota teaches a variety of movements and different axes. The Examiner states that the bed is adjustable both vertically and laterally. The Examiner feels it would have been obvious to apply the movements taught by Oota to the systems shown by Nambu et al.

Applicants disagree that the present claims are obvious over this combination of references. First, concerning Nambu et al., it should be noted that the linear accelerator 1 and the CT apparatus 3 are fixed in position. The bed 5 moves along rail 19 and also can swing about rotation axis 9a. In the embodiment shown in Figure 9, a direct rotation about this axis is shown. The Examiner states that the bed is capable of linear movements as well as curved movements. However, the only linear movements shown are the extension of the bed from its base. This type of motion is usually referred to as table adjustment. This differs from the linear movement of the present invention where the entire bed with its base is moved on rails.

The Oota reference includes a bed which is basically fixed in position. As noted in paragraph [0031], the stand on which the bed is placed is fixed to the floor surface. The bed can be raised or lowered on this base and can also extend in the longitudinal direction in the same type of table adjustment movement. However, the table mechanism is not moveable, but is fixed in one position.

Claim 1 describes the means for moving as including a moving mechanism for linearly moving the CT scanner and the common bed. Oota shows the movement of the CT scanner on rail 22. However, in Nambu et al., the scanner is fixed in position. Claim 1 also describes the

linear moving mechanism for the common bed. As noted above, while both of the references show table adjustment movements, these do not show a linear moving mechanism for moving the bed as in the present invention. Further, the claim describes the moving movements of the CT scanner and the bed as crossing each other. Even if the table adjustment is considered to be a linear moving mechanism for the bed, the movements of the scanner and the bed would be in the same direction rather than crossing each other. Likewise, in Nambu et al., since there is no movement of the scanner, the movement directions can not cross each other. However, even if the CT scanner 3 of Nambu moved in a similar fashion to that of Oota, the linear adjustment of the table would still be in the same direction in a similar fashion to that of Oota. Accordingly, neither of these references teach the movement directions as crossing each other.

The final paragraph of claim 1 further states that the CT scanner is parallel to the irradiation apparatus. This arrangement is shown in Figures 7 and 8 of the present application, for example. Applicants submit that these two devices are not in parallel in Oota. As noted by the Examiner, the irradiation apparatus is moveable in a number of directions. However, the movement of the apparatus as a whole is perpendicular to that of the CT scanner. As shown in Figure 2, the apparatus moves on rails 3e so that the apparatus can move to a position where the arm 3 does not interfere with the CT gantry 2. Thus, these apparatuses are not in parallel, but rather perpendicular. Thus, Applicants submit that even if combined, these references do not show that the moving mechanism for the bed is linear, that the movement directions of the scanner and bed cross each other, that the scanner and irradiation apparatus are disposed in parallel and that the bed is moveable between the CT scanner and irradiation apparatus. As

noted above, while the bed extends using a table adjustment, it is not moveable between the two apparatuses. The Examiner is referred to Figures 7 and 8 to show the movements of the present invention where the CT scanner 1, the irradiation apparatus 2 and the x-ray simulator 8 are all in parallel so that the bed may move along rails 9 between the 3 positions in a simple operation. This arrangement is not shown in either of the references or their combination.

Claims 9, 10, 18, 19 and 25 depend from claim 1 and as such are also considered to be allowable. In addition, each of these claims recite additional features which make them additionally allowable.

Thus, claim 10 further describes the x-ray simulator and that the scanner, irradiation apparatus and x-ray simulator are all parallel and that the bed is moveable between all three. This arrangement is shown in Figure 8 and is not suggested by any of the references. Claims 18 and 19 further describe the size of the detectable region of the CT scanner. The Examiner has already indicated that these claims overcome this rejection since the rejection has not been applied to these two claims.

Claims 18 and 19 stand rejected under 35 U.S.C. § 103 as being obvious over Nambu et al. in view of Oota as applied above and further in view of Shepherd et al. (U.S. Patent 5,537,452). This rejection is respectfully traversed.

The Examiner cites the Shepherd reference to show a positioning means which allows for improved localization of irradiation dose and targeting. Applicants submit that even if this reference does show these features, these claims remain allowable based on their dependency from allowable claim 1.

It should also be noted that different types of irradiation produce different effects. Even with x-rays, the energies and doses for diagnostic x-rays (CT scanner, x-ray simulator, etc.) are quite different from those for cancer treatment x-rays (linear accelerator). This is very important when considering the arrangement of the various mechanisms when diagnostic machines are combined with a linear accelerator. The very high energy x-rays from linear accelerators can easily destroy the sensitive x-ray detectors of a CT scanner which are made to detect low energy x-rays. Thus, in Oota's apparatus only diagnostic x-ray machines are used so that it is not necessary to worry about high energy x-rays. Thus the CT scanner and the C-arm diagnostic apparatus can be put together. However, if a linear accelerator is used instead of a diagnostic C-arm apparatus, the CT detectors can easily be destroyed by the high energy x-rays from the linear accelerator. Thus, utilizing the teachings of the movement of Oota would not necessarily be obvious when a linear accelerator is being involved, due to the possible damage to one machine from the other.

Based on this understanding, it is easy to realize why the arrangement shown in Figures 7 and 8 of the present application are particularly useful. The CT scanner and linear accelerator are placed in parallel so that the high energy x-rays are not aimed at the CT scanner. Furthermore, enough distance is placed between the two to further help avoid this type of problem. For this arrangement, the bed mechanism can be moved on rails from one machine to the other so that the system does not need to be moved. The bed mechanism is easily moved from system to the other. In addition, the bed can still have additional functions such as an isocentric rotation function. It should also be noted that the spacing between the systems can be

a relatively long distance if desired in order to further remove any possibility of x-ray damage. It is also possible to place shielding walls between the systems if desired.

In the Nambu et al. system the accelerator and the diagnostic machines are at right angles to each other. Thus, the high energy x-rays from the linear accelerator can strike the diagnostic apparatus and can destroy the detectors. While the tabletop can be extended into and retracted from the scanner in a table adjustment movement, it does not allow the two systems to be spaced at a distance from each other. Oota likewise shows systems which are perpendicular in movement to each other. Neither of these references nor Shepherd show an arrangement where the units are in parallel and spaced from each other with sufficient distance to avoid high energy x-rays from the irradiation apparatus from hitting the x-ray detectors of the diagnostic units. None of these references show the various systems in parallel in being reachable by a common bed which runs on rails. Accordingly, applicants submit that the claims are clearly patentable over these references.

CONCLUSION

In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone or in combination. In view of this, reconsideration of the rejection and allowance of all the claims are respectfully requested.

GMM/RFG/eb/las

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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Attachment: SB08 Form (1 page)

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